

CLAIMS

What is claimed is:

- 1 1. An energy transfer element, comprising:
 - 2 an energy transfer element core;
 - 3 a first winding wound around the energy transfer element core;
 - 4 a second winding wound around the energy transfer element core, the first
 - 5 winding capacitively coupled to the second winding;
 - 6 a third winding wound around the energy transfer element core, the third
 - 7 winding to generate a third winding electrostatic field to substantially cancel
 - 8 relative electrostatic fields generated by the first and second windings relative to
 - 9 the energy transfer element core to substantially reduce a capacitive displacement
 - 10 current between the first and second windings; and
 - 11 a fourth winding and a fifth winding wound around the energy transfer
 - 12 element core between the first and second windings to substantially reduce the
 - 13 capacitive displacement current between the first and second windings, the fourth
 - 14 winding coupled to the first winding and the fifth winding coupled to the second
 - 15 winding.
- 1 2. The energy transfer element of claim 1 wherein the first winding is an
- 2 input winding of the energy transfer element and the second winding is an output
- 3 winding of the energy transfer element.

1 3. The energy transfer element of claim 1 wherein the first winding is an
2 output winding of the energy transfer element and the second winding is an input
3 winding of the energy transfer element.

1 4. An energy transfer element, comprising:
2 an energy transfer element core;
3 a first winding wound around the energy transfer element core;
4 a second winding wound around the energy transfer element core, the first
5 and second windings capacitively coupled to electrical earth; and
6 a third winding wound around the energy transfer element core and
7 coupled to the first winding; and
8 a fourth winding wound around the energy transfer element core and
9 coupled to the second winding, the third winding and fourth winding to generate a
10 third winding electrostatic field and a fourth winding electrostatic field to
11 substantially reduce the capacitive displacement current between the first and
12 second windings.

1 5. The energy transfer element of 4 comprising a fifth winding wound
2 around the energy transfer element core and coupled to the first winding, the fifth
3 winding wound to generate a fifth winding electrostatic field to cancel relative
4 electrostatic fields generated by the first second third and fourth windings relative

5 to the energy transfer element core to substantially reduce a capacitive
6 displacement current between the energy transfer element core and electrical
7 earth.

1 6. The energy transfer element of 5 wherein the fifth winding is
2 electrically coupled to the first winding.

1 7. The energy transfer element of 5 wherein the fifth winding is
2 electrically coupled to the second winding.

1 8. The energy transfer element of claim 5 wherein the first winding
2 capacitively is coupled to the second winding, wherein the fifth winding
3 electrostatic field substantially cancels relative electrostatic fields generated by the
4 first and second windings relative to the energy transfer element core to
5 substantially reduce a capacitive displacement current between the first and
6 second windings and the energy transfer element core.

1 9. The energy transfer element of claim 5 wherein the fifth winding is
2 wound around the energy transfer element core with a number of turns based at
3 least in part on a function of a percentage portion of the first winding included in a
4 first layer of the first winding.

1 10. The energy transfer element of claim 5 wherein the first winding is
2 physically wound closer to the energy transfer element core than the second
3 winding.

1 11. The energy transfer element of claim 10 wherein the fifth winding is
2 physically wound closer to the energy transfer element core than the first winding.

1 12. The energy transfer element of claim 10 wherein the first and second
2 windings are physically wound closer to the energy transfer element core than the
3 third winding.

1 13. The energy transfer element of claim 4 wherein the energy transfer
2 element is included in a flyback transformer.

1 14. The energy transfer element of claim 4 wherein the energy transfer
2 element is included in a forward converter transformer.

1 15. The energy transfer element of claim 4 wherein the first winding is an
2 input winding of the energy transfer element and the second winding is an output
3 winding of the energy transfer element.

1 16. The energy transfer element of claim 4 wherein the first winding is an
2 output winding of the energy transfer element and the second winding is an input
3 winding of the energy transfer element.

1 17. The energy transfer element of claim 4 wherein the energy transfer
2 element is included in a power supply.